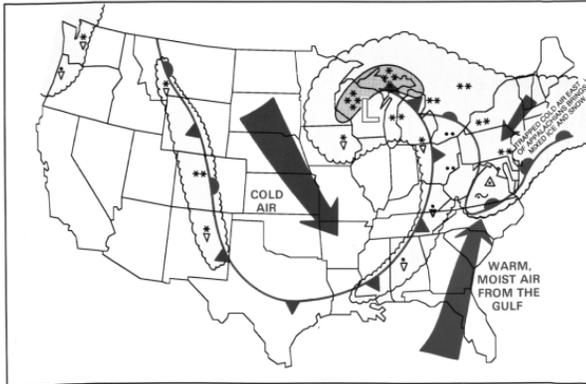
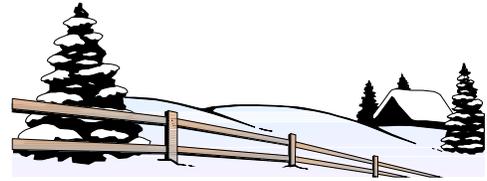


Winter Storms in Wisconsin



What Makes a Winter Storm?

Cold air: Below freezing temperatures in the clouds and near the ground are necessary to make snow and ice.

Moisture: Needed to form clouds and precipitation.

Lift: Something to raise the moist air to form clouds and precipitation, such as a front.

Where Do Winter Storms Develop?

- * Storms that affect Wisconsin develop over southeast Colorado, northwest Canada, and over the southern Plains. These storms move toward the Midwest and use both the southward plunge of cold air from Canada and the northward flow of moisture from the Gulf of Mexico to produce heavy snow over the region.
- * "Alberta Clippers," which develop in the lee of the Canadian Rockies and move southeast toward Wisconsin, not only produce accumulating snow, but can also bring strong winds and extremely cold air to the state.
- * Lake effect snowstorms develop as cold air moves across the relatively warmer waters of Lake Michigan and Lake Superior. Moisture from the lakes is then deposited as heavy snow within several miles of the shore.

Winter Storms in Wisconsin

	DATE	LOCATION	CHARACTER	REMARKS
1	MAR 2-4, 1881	SRN & CNTRL WI	BLIZZARD	2-4 FT SNOWFALL, 20 FOOT DRIFTS
2	JAN 15, 1887	SRN & CNTRL WI	SNOWSTORM	2 FT SNOW, HUGE DRIFTS
3	DEC 27-28, 1904	SRN & CNTRL WI	HVY SNOW/ICE	26" NEILLSVILLE - 24 HOUR STATE RECORD
4	FEB 3-6, 1924	SRN WI	BLIZZARD	20.3" AT MILWAUKEE, 10' DRIFTS
5	NOV 11-12, 1940	STATEWIDE	BLIZZARD	12 DEATHS, SEVERE DRIFTING
6	NOV 6-8, 1943	STATEWIDE	HVY SNOW/ICE	10" - 18", ROADS BLOCKED FOR DAYS
7	JAN 28-30, 1947	SRN & CNTRL WI	BLIZZARD	10"-27" , 15' DRIFTS, BLOCKED ROADS
8	OCT 31 - NOV 2, 1991	NW & WC WI	SNOWSTORM	20"-35" SNOWFALL, HUGE DRIFTS
9	JAN 2-3, 1999	SRN & CNTRL WI	BLIZZARD	10"-21" ACCUMS, 50-60 MPH GUSTS, 8' DRIFTS
10	MAR 13-14, 1997	WC TO NE WI	SNOWSTORM	12"-28" SNOWFALL OVER TWO DAYS

Watches and Warnings

Throughout the winter, the National Weather Service uses specific terminology to help relay the weather threat to the public. Knowing winter weather terms will keep you one step ahead of the storm, allowing you to plan before the snow and cold strike.

- ✧ **Winter Storm Watch:** Severe winter weather, such as heavy snow and ice, are possible within the next day or two in the watch area. Stay tuned to NOAA Weather Radio and commercial radio and television for later forecasts.

- ✧ **Winter Storm Warning:** Severe winter weather conditions have begun or are about to begin. Stay indoors, if possible. Winter Storm Warnings are issued for heavy snow, a combination of snow and strong winds, or a heavy accumulation of mixed precipitation.

- ✧ **Blizzard Warning:** Snow and strong winds will combine to produce a blinding snow (near zero visibility), deep drifts, and life-threatening wind chill. Do not venture outdoors in a blizzard.

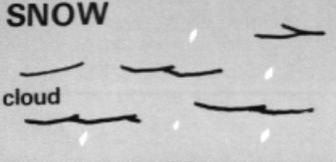
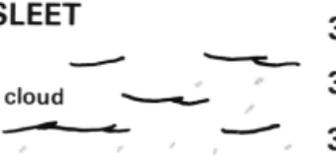
- ✧ **Winter Weather Advisory:** Winter precipitation (3 or more inches of snow, freezing rain/drizzle, a significant mixture, significant blowing snow), is expected to produce hazardous conditions. If caution is exercised, these situations should not become life-threatening.

- ✧ **Ice Storm Warning:** Heavy ice accumulations will cause extremely dangerous and damaging conditions, such as icy roads and downed power lines.

- ✧ **Wind Chill Warning:** Dangerously cold wind chills of -35°F or lower are expected. Do not venture out.

- ✧ **Wind Chill Advisory:** Wind chills of -25°F or lower are expected.

Winter Precipitation

SNOW  cloud 28° 29°	SLEET  cloud 34° 33° 32°	FREEZING RAIN  cloud 36° 35° 34°
 30° 31° 31° 30°	 31° 30° 30° 30°	 33° 32° 31°
Cloud temperature is cold enough for snow to form; air above the ground does not melt it. 30°	Rain freezes to ice pellets which do not stick to surfaces, but accumulate on the ground. 30°	Glaze of ice forms over surfaces. 30°

Snow

Flurries: Light snow falling for short durations. No accumulation or just a light dusting.

Snow Showers: Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

Snow Squall: Intense snow showers accompanied by gusty winds which develop near the Great Lakes. Accumulations may be significant.

Blowing Snow: Wind-driven snow that reduces visibility and causes drifting.

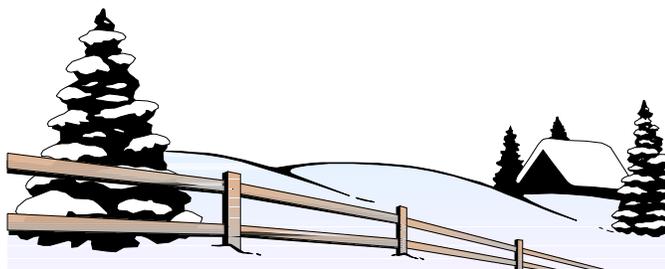
Blizzard: Winds over 35 mph with snow and blowing snow reducing visibilities to near zero.

Sleet

Raindrops that freeze into ice pellets before reaching the ground. Sleet usually bounces after hitting a surface and does not stick to objects. It can accumulate like snow and present a hazard to motorists.

Freezing Rain

Rain that falls onto a surface with a temperature below freezing. This causes the rain to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can be hazardous.



The Effects of the Cold

Frostbite

Frostbite is damage to body tissue caused by freezing of the tissue. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. If symptoms are detected, get medical help immediately. If you must wait for help, slowly re-warm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

Hypothermia

Hypothermia occurs when the body temperature drops too low. Warnings signs of hypothermia include uncontrollable shivering, memory loss, disorientation, slurred speech, drowsiness, and apparent exhaustion. If a person's temperature is below 95°F (35°C), seek medical care immediately. **If medical care is not available**, begin warming the person *slowly*. Get the person into dry clothing and wrap them in a warm blanket covering the head and neck. Do not give the person **hot** beverages or food; warm broth is better. Do not warm extremities (arms and legs) first. This drives the cold blood toward the heart and can lead to heart failure.

Prevention: Have all extremities covered with clothing. Mittens are better than gloves, because gloves allow your fingers to cool much faster than do mittens. Do not stay outside for extended periods during bitterly cold weather. Wear layers of loose-fitting, light-weight, warm clothing. Remove layers to avoid overheating, perspiration, and subsequent chill.

Wind Chill

The wind chill is based on the rate of heat loss from exposed skin caused by the combined effects of the wind and cold. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill. Objects, such as vehicles, are not.

To use the chart, read right and down from the calm-air line. For example, a temperature of zero combined with a 20 mph wind has an equivalent cooling effect of -22 °F.

Wind Chill Chart
Wind (mph)

	Calm	5	10	15	20	25	30	35	40	45	50	55	60
40	36	34	32	30	29	28	28	27	26	26	25	25	
35	31	27	25	24	23	22	21	20	19	19	18	17	
30	25	21	19	17	16	15	14	13	12	12	11	10	
25	19	15	13	11	9	8	7	6	5	4	4	3	
20	13	9	6	4	3	1	0	-1	-2	-3	-3	-4	
15	7	3	0	-2	-4	-5	-7	-8	-9	-10	-11	-11	
10	1	-4	-7	-9	-11	-12	-14	-15	-16	-17	-18	-19	
5	-5	-10	-13	-15	-17	-19	-21	-22	-23	-24	-25	-26	
0	-11	-16	-19	-22	-24	-26	-27	-29	-30	-31	-32	-33	
-5	-16	-22	-26	-29	-31	-33	-34	-36	-37	-38	-39	-40	
-10	-22	-28	-32	-35	-37	-39	-41	-43	-44	-45	-46	-48	
-15	-28	-35	-39	-42	-44	-46	-48	-50	-51	-52	-54	-55	
-20	-34	-41	-45	-48	-51	-53	-55	-57	-58	-60	-61	-62	
-25	-40	-47	-51	-55	-58	-60	-62	-64	-65	-67	-68	-69	
-30	-46	-53	-58	-61	-64	-67	-69	-71	-72	-74	-75	-76	
-35	-52	-59	-64	-68	-71	-73	-76	-78	-79	-81	-82	-84	
-40	-57	-66	-71	-74	-78	-80	-82	-84	-86	-88	-89	-91	
-45	-63	-72	-77	-81	-84	-87	-89	-91	-93	-95	-97	-98	



Frostbite Times	
■	30 minutes
■	10 minutes
■	5 minutes



Be Prepared...

Before the Storm Strikes

At home and at work...

Have available:

- ✓ Flashlight and extra batteries
- ✓ Battery-powered NOAA Weather Radio and commercial radio
- ✓ Extra food and water. High energy food or food that requires no cooking is best
- ✓ First-aid supplies
- ✓ Emergency heating source, such as a fireplace or space heater — make sure you have proper ventilation

In cars and trucks...

Plan your travel and check the latest weather reports to avoid the storm. If you do travel:

- ✓ Check and winterize your vehicle before the winter season begins
- ✓ Carry a winter storm survival kit that includes: blankets/sleeping bags, flashlight with extra batteries, first-aid kit, knife, high-calorie non-perishable food, extra clothing to keep dry, sand or cat litter, shovel, windshield scraper and brush, tool kit, and booster cables
- ✓ Keep your gas tank near full to avoid ice in the tank and fuel lines
- ✓ Try not to travel alone
- ✓ Let others know your timetable and primary and alternate routes

When Caught in a Winter Storm

Outside

Find Shelter:

- Try to stay dry.
- Cover all exposed parts of body.

No Shelter:

- Prepare a wind-break for protection from the wind.
- Build a fire for heat and to attract attention.
- Place rocks around fire to absorb and reflect heat.

Do Not Eat Snow:

- It will lower your body temperature. Melt it first.

In a Vehicle

Stay in Your Vehicle

Run the Motor Sparingly:

- About ten minutes each hour for heat.
- Open the window a bit for fresh air to avoid carbon monoxide poisoning.
- Make sure exhaust pipe is not blocked.

Make Yourself Visible to Rescuers:

- Turn on dome light at night.
- Tie colored cloth to antenna.

At Home

Stay Inside:

- Make sure you provide proper ventilation when using alternate heat sources.
- If no heat, close off unneeded rooms and stuff towels under doors.

Eat and Drink:

- Food supplies heat and non-alcoholic beverages prevent dehydration.

Dress Warmly